IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Patent Application No. 10/775,633

Applicant: Kevin Burak

Filed: February 12, 2004

TC/AU: 2616

Examiner: LAI, ANDREW

Docket No.: 226432 (Client Reference No. 02,011)

Customer No.: 23460

APPELLANTS' APPEAL BRIEF

Mail Stop Appeal Brief – Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In support of the appeal from the final rejection dated June 26, 2008, Appellants now submit their Brief.

Real Party In Interest

The patent application that is the subject of this appeal is assigned to Invensys Systems, Inc.

Related Appeals and Interferences

There are no appeals or interferences that are related to this appeal.

CERTIFICATE OF MAILING OR TRANSMISSION UNDER 37 CFR 1.8			
I hereby certify that this Brief and all accompanying documents are, on the date indicated below, ☒ being deposited with the United States Postal Service as first class mail in an envelope addressed to: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, or ☐ being facsimile transmitted to the U.S. Patent and Trademark Office, Facsimile Number (571) 273-8300.			
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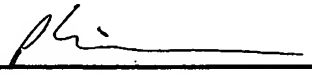
Signature		*Date*	April 30, 2009

Status of Claims

Claims 1-19 are pending in this application and the rejection of each of these claims is herewith appealed. No claims are cancelled and there are no pending claims that are not appealed. Claims 1, 2, 3, 4-7 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Okada (US 2002/0018442). Claims 11, 12, 14, and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over a first embodiment of Okada in view of a second embodiment of Okada. Claims 8, 10, 15 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okada in view of Kalkunte et al. (US 2002/0010791). Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okada in view of Dreyer et al. (US 6,098,103).

Status of Amendments

There are no outstanding, i.e., un-entered, amendments pending.

Summary of Claimed Subject Matter

Claim 1 pertains to an industrial network redundancy system that provides communications redundancy between industrial network nodes. The system includes two or more industrial network nodes, with each node having two or more network ports to a switched network ([0024] and FIG. 1). A switched network is defined, in keeping with the known definition, as being distinct from collision domain networks, and allows for simultaneous switching of packets between the switch's ports. (*See* paras. [0003]-[0004]).

The system also includes multiple communications paths between respective network ports of the industrial nodes, and all of these communication paths make up a switched network ([0025]). A data link protocol layer at each node determines which of the many communications paths to utilize for outgoing communications and determines to which port of the other industrial network node to address communications ([0026]-[0027]; FIG. 5 and {0046]-[0047]).

Claim 2 pertains to an industrial network redundancy system that provides communications redundancy between a first industrial network node and multiple second industrial network nodes. Each node supports multiple network ports to a switched network (FIG. 1 and [0024]). As noted above, the application uses the term "switched network"

consistent with the known definition of this well-known term of art, as being distinct from collision domain networks, and allowing for simultaneous switching of packets between the switch's ports. (*See* paras. [0003]-[0004]). The switched network includes a plurality of communications paths between network ports of the first industrial network node and each of the second industrial network nodes (FIG. 1 and [0024]). A data link protocol layer residing on each node switches the plurality of communications paths based on detection of a fault in connectivity between nodes ([0026]-[0027]).

Claim 3 pertains to an industrial network node having multiple network ports connected to a single switched network ([0024] and FIG. 1). As noted above, the application uses the term "switched network" consistent with the known definition of this well-known term of art, as being distinct from collision domain networks, and allowing for simultaneous switching of packets between the switch's ports. (*See* paras. [0003]-[0004]). A second industrial network node is also connected to the switched network ([0024] and FIG. 1). A data link protocol layer is provided that is transparently usable by higher layers of the protocol stack to facilitate network communications to the second industrial network node. The data link protocol layer determines which of the plurality of network ports to use to transmit a communication from the first node to the second node, and to forward communications received on any of the first node's network ports ([0026]-[0027]).

Claim 11 pertains to a method of providing network communication redundancy between first and second nodes connected via a switched industrial network ([0024] and FIG. 1). As noted above, the application uses the term "switched network" consistent with the known definition of this well-known term of art, as being distinct from collision domain networks, and allowing for simultaneous switching of packets between the switch's ports. (*See* paras. [0003]-[0004]). Each of the nodes has at least two physical network ports, wherein for each node ([0024] and FIG. 1), one physical port is a primary port associated with a primary communications stack and the other physical port is an alternate port ([0025]). In the method of claim 11, the first node determines that a communications fault has occurred on that node's primary port. ([0026]-[0027]). The first node subsequently unbinds the primary communications stack from the primary port transparently to communications stack layers above the data link layer and binds the primary communications stack to the alternate port at the first node transparently to communications stack layers above the data link layer.

Id. The first node then forwards further outgoing network communications associated with the primary communications stack from the alternate port of the first node. ([0026]-[0027]).

Grounds of Rejection to be reviewed on Appeal

(1) Claim 1 was rejected under 35 U.S.C. 102(e) as being anticipated by Okada (US 2002/0018442).

(2) Claim 2 was rejected under 35 U.S.C. 102(e) as being anticipated by Okada (US 2002/0018442).

(3) Claim 3 was rejected under 35 U.S.C. 102(e) as being anticipated by Okada (US 2002/0018442).

(4) Claim 11was rejected under 35 U.S.C. 103(a) as being unpatentable over a first embodiment of Okada in view of a second embodiment of Okada.

Argument

(1) Claim 1 was rejected under 35 U.S.C. 102(e) as being anticipated by Okada (US 2002/0018442).

Claim 1 relies upon and expressly recites a switched network. This aspect of the invention can be seen, for example, in Figure 1 of the present application, with respect to switches 121, 123, 125, and 127. Moreover, in addition to these figures and the well-known meaning of the term of art "switched network," the specification also defines the term "switched network" consistent with the known definition of this well-known term of art, as being distinct from collision domain networks, and allowing for simultaneous switching of packets between the switch's ports. (*See* paras. [0003]-[0004]).

Thus, there can be no doubt that when the claims use the term "switched network," they are expressly referring to what one of skill in the art would actually consider to be a switched network.

The cited art, and in particular Okada does not pertain to switched networks. Rather, the networks of Okada are clearly traditional ***collision detection networks***. The Office Action points to "0 transmission line 361" and "1 transmission line 362" as indicating the

presence of one or more switched networks. *See* Action at page 3. However, the Okada specification describes these elements as traditional networks, not switched networks. For example, see Okada at paragraph [0049]: "The hubs 351-358 are connected in a **ring** to form a simplex basic local area network with a ring structure. The hubs 351-358 are classified into first and second groups to raise reliablity [sic] of the simplex basic local area network." (emphasis added) Thus, groups 361 and 362 are ring sub-networks, not switched networks.

The Action also appears to cite the "simplex" nature of the Okada networks in certain embodiments as being indicative of switched operation. *See* Action at page 3. However, a switched network line is generally full duplex, not simplex (one-way half-duplex) or even two-way half-duplex. Thus, Okada's description of channels as "simplex" indicates conclusively that the Okada networks are not switched.

Because claim 1 expressly requires a switched network, and because the cited art clearly does not pertain to switched networks, a prima facie case of unpatentability has not been made by the Examiner.

(2) Claim 2 was rejected under 35 U.S.C. 102(e) as being anticipated by Okada (US 2002/0018442).

Claim 2 also relies upon and expressly recites a switched network. And as noted above, there can be no doubt that when the claims use the term "switched network," they are expressly referring to what one of skill in the art would actually consider to be a switched network.

The cited art, and in particular Okada does not pertain to switched networks, as discussed above. Rather, the networks of Okada are clearly traditional ***collision detection networks***.

Because claim 2 expressly requires a switched network, and because the cited art clearly does not pertain to switched networks, a prima facie case of unpatentability has not been made by the Examiner.

(3) Claim 3 was rejected under 35 U.S.C. 102(e) as being anticipated by Okada (US 2002/0018442).

Claim 3 as well relies upon and expressly recites a switched network, and again, there can be no doubt that when the claims use the term "switched network," they are expressly referring to what one of skill in the art would actually consider to be a switched network.

The cited art, and in particular Okada does not pertain to switched networks, as was discussed above. Rather, the networks of Okada are clearly traditional ***collision detection networks.***

Because claim 3 expressly requires a switched network, and because the cited art clearly does not pertain to switched networks, a prima facie case of unpatentability has not been made by the Examiner.

(4) Claim 11was rejected under 35 U.S.C. 103(a) as being unpatentable over a first embodiment of Okada in view of a second embodiment of Okada.

Claim 11 as well relies upon and expressly recites a switched network, and again, there can be no doubt that when the claims use the term "switched network," they are expressly referring to what one of skill in the art would actually consider to be a switched network.

The cited art, and in particular Okada does not pertain to switched networks, as was discussed above. Rather, the networks of Okada are clearly traditional ***collision detection networks.***

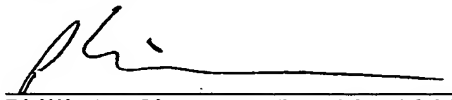
Because claim 1 expressly requires a switched network, and because the cited art clearly does not pertain to switched networks, a prima facie case of unpatentability has not been made by the Examiner.

Conclusion

The claims expressly require the use of or operation within a switched network. The cited art pertains to collision detection networks, not switched networks. The Examiner has not, and of course, could not, assert that collision detection networks and switched networks operate according to the same principles. Indeed, one of skill in the art will appreciate that these two network types are mutually exclusive and operate according to completely different principles.

As such, there is no prima facie case of unpatentability pending against any claim, and allowance of claims 1, 2, 3, and 11 (and their dependent claims) is respectfully requested.

Respectfully submitted,



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Date: April 30, 2009

Claims Appendix

1. (Previously Presented) An industrial network redundancy system for providing communications redundancy between industrial network nodes comprising:

at least two industrial network nodes, each having a plurality of network ports to a switched network;

a plurality of communications paths between respective network ports of the at least two industrial nodes, wherein the plurality of communication paths comprise the switched network; and

a respective data link protocol layer residing on each of the at least two industrial network nodes for determining which of the plurality of communications paths to utilize for outgoing communications and for determining to which port of the other of the at least two industrial network nodes such communications are addressed.

2. (Original) An industrial network redundancy system for providing communications redundancy between a first industrial network node and a plurality of second industrial network nodes comprising:

the first industrial network node and the plurality of second industrial network nodes, each having a plurality of network ports to a switched network;

a plurality of communications paths between respective network ports of the first industrial network node and each of the plurality of second industrial network nodes, all of the plurality of communication paths comprising the switched network; and

a respective data link protocol layer residing on the first industrial network node and each of the plurality of second industrial network nodes wherein the plurality of communications paths are switched based on detection of a fault in connectivity between nodes.

3. (Original) An industrial network node comprising:

a plurality of network ports connected to a single switched network, wherein a second industrial network node is also connected to the switched network; and

a data link protocol layer transparently usable by higher layers of a protocol stack to facilitate network communications to the second industrial network node, the data link protocol layer being adapted to determine which of the plurality of network ports to use to transmit a communication to the second industrial network node, and to forward communications received on any of the plurality of network ports.

4. (Original) The industrial network node according to claim 3 wherein each industrial network node comprises a communication end-station.

5. (Original) The industrial network node according to claim 4 wherein the communication end-station is selected from the group consisting of a computer, a field module, and a control module.

6. (Original) The industrial network node according to claim 3 wherein the higher protocol stack layers above the data link layer include an IP layer.

7. (Original) The industrial network node according to claim 6 wherein the higher protocol stack layers above the data link layer include an application layer.

8. (Original) The industrial network node according to claim 3 wherein the switched network further comprises at least one IEEE 802.1d compliant bridge.

9. (Original) The industrial network node according to claim 3 wherein in determining which of the plurality of network ports to use to transmit a communication to the second industrial network node, the data link protocol layer employs an alternate port based on physical link status information received from its ports and end-to-end connectivity status received from a reliable Logical Link Control (LLC) Type 2 or 3.

10. (Original) The industrial network node according to claim 3, wherein the plurality of network ports conform to an IEEE 802.3 link aggregation standard.

11. (Original) A method of providing network communication redundancy between a first and second node connected via a switched industrial network, the first and second node each having at least two physical network ports, wherein for each node, one physical port is a primary port associated with a primary communications stack and the other physical port is an alternate port, the method comprising:

determining at the first node that a communications fault has occurred on that node's primary port;

unbinding the primary communications stack from the primary port at the first node transparently to communications stack layers above a data link layer;

binding the primary communications stack to the alternate port at the first node transparently to communications stack layers above the data link layer; and

forwarding further outgoing network communications associated with the primary communications stack from the alternate port of the first node.

12. (Original) The method according to claim 11, wherein each physical network port of the first node has a distinct network and MAC address within the switched network.

13. (Original) The method according to claim 12, further comprising the step of transmitting a broadcast packet from the first node via the alternate port to inform network switches of the MAC address of the alternate port.

14. (Original) The method according to claim 11, wherein the primary port and alternate port of the first node are connected to the switched network via different network switches.

15. (Original) The method according to claim 11, wherein the primary port and the alternate port conform to an IEEE 802.3 link aggregation standard.

16. (Original) The method according to claim 11, wherein the first and second nodes are each of a type selected from the group consisting of a computer, a field module, and a control module.

17. (Original) The method according to claim 11, wherein the communications stack layers above the data link layer include an IP layer.

18. (Original) The method according to claim 11, wherein the communications stack layers above the data link layer include an application layer.

19. (Original) The method according to claim 11, wherein the switched industrial network further comprises at least one IEEE 802.1d compliant bridge.

Evidence Appendix

NONE

Related Proceedings Appendix

NONE